SPECTRA-E Radio for VHF, UHF, 800 MHz and 900 MHz SmartZone Operation

Feature/Advantage

Designed for SmartZone Trunked Operation—The Spectra radio has all the features and benefits inherent in Motorola's advanced trunked systems, including:

- Automatic Site Registration (ASR)
- System Control Channel Scan List
- Adjacent Control Channel Scan List
- Receive Signal Strength Indication (RSSI)
- Busy Override
- Preferred Site Operation
- Critical User
- Dynamic Regrouping
- Fast System Access
- Automatic Call Back
- Privacy
- Selective Inhibit
- Busy Queueing
- Automatic Retry
- Multiple Site Select
- Recent User Priority
- Emergency Call
- Continuous Assignment Update
- Failsoft Protection
- Multiple Subfleet Select

The radio's logic circuitry is designed to integrate this high performance mobile into a fully automatic, channel-sharing trunked system. A SmartZone system can be easily expanded to meet changing communications requirements.

User Friendly Operation—Human-engineered controls make operation of even the most sophisticated features easy. An 8-character alphanumeric display provides plain language indication of trunked and conventional "Talkgroups", Phone and Call list numbers and names. An 11-character alphanumeric display is standard on the E9 model.

Lets you name the channel in plain English, such as "DISPATCH" or "PATROL." Provides easy operator identification of who's on which channel. Less time is spent training your radio operators, leaving more time for getting the job done.

Rugged and Reliable—A die-cast aluminum chassis provides maximum component protection against harsh mobile environments. Spectra models meet the stringent demands of MIL-STD 810D specifications for protection against shock, vibration, rain, dust and salt fog in most mounting configurations.

This radio provides maximum toughness and reliability, even in harsh environments. On power up, the control unit gives a positive indication that the radio has passed its own internal "self-check."

Easy Field Programmability—Radio functions can be modified in the field by reprogramming the EEPROM. The most frequently modified parameters can be easily changed via the front control panel.

This radio can accommodate virtually an unlimited number of changes quickly and inexpensively. Front panel programmability can eliminate unnecessary trips to the service shop to change the most commonly modified parameters.

Mode-Slaved Operation—A mode is a list of characteristics/functions associated with a trunked or conventional communications channel, such as transmit and receive frequencies with Private-Line coded squelch. Mode-slaving allows one dedicated button on the control panel to perform customized operations on a per-mode basis.

Mode-Slaving simplifies operation because your radio does all the work in choosing the proper communications parameters for the selected channel.

"HearClear" Audio Enhancement (900 MHz only)—The advanced audio processing technology of the Spectra radio reduces noise and provides crisp, clear audio. It can even enhance reception in marginal conditions.

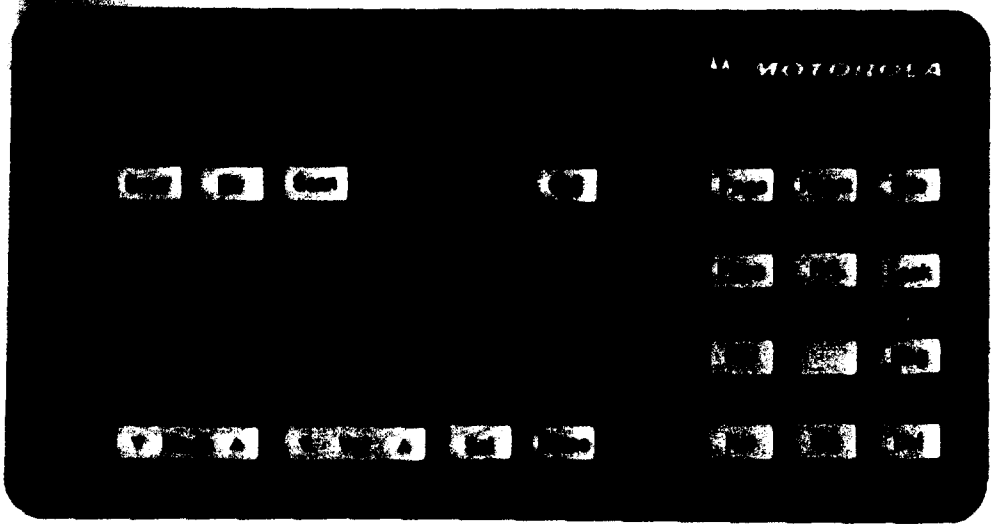
HearClear enhancement improves audio quality, effectively increasing your communications range without adding costly equipment. The high output provides plenty of audio "headroom", even in a noisy environment.

Talk Group Scan—Allows one scan list per radio. This list may include up to 16 modes to be scanned.

Talk Group Scan allows the user to monitor activity in talk groups of both trunked and conventional modes.

Priority Talk Group Scan—Allows a different scan list for every system/fleet and conventional channel. Each list can include 2 designated priorities.

Priority Talk Group Scan provides the user with trunked Priority Monitor and conventional Priority Channel Scan in the same radio.

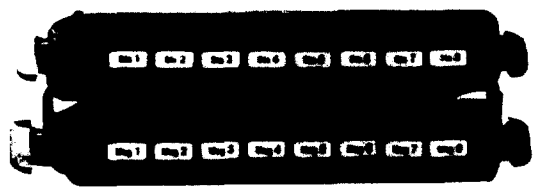


E9 Model Control Head

Options Available with the E9 Model Only

Status/Message Capability—Provides up to 16 dedicated buttons which can send predefined status or message conditions from vehicle to base. These buttons are conveniently positioned in a supplemental housing that mounts directly above the control unit, using the same mounting bracket.

Status/message capability allows the mobile operator to quickly inform the dispatcher of the unit's current operating condition without interrupting normal subfleet communication. That means more efficient task coordination for your team. What's more, convenient controls let your operator stay in touch with minimal effort, reducing operator fatigue.



8 status/8 message option (W374)

Electronic Siren and Public Address—The Spectra-E9 radio's siren and public address option enhances your traffic and crowd control capability with 100 watts of continuous duty siren power and 50 watts of public address output power. Also, controls are on a separate panel with large buttons for easy operator access. Plus, you'll only need one microphone to operate the radio and the public address, eliminating the need for extra equipment.

Allows you to get people's attention quickly during emergency situations, contributing to overall safety and efficiency. Conveniently located controls provide easy activation of the siren or public address system.

Siren/PA option (W269)

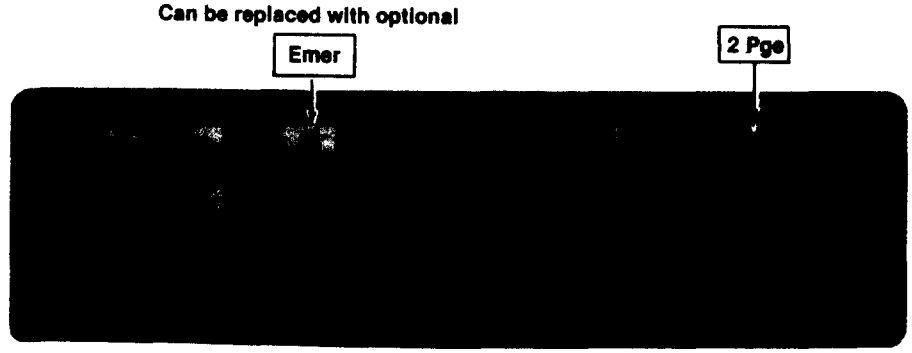
Front and Rear Controls—Provides an additional control unit, speaker, handset and cable to allow operation of the radio from the front and back of the vehicle.

Now you can have the Spectra-E radio where it conveniently serves your communication needs. Your operators can carry out their individual duties while using the *same* radio system. Emergency Medical Services will find this feature particularly useful because one attendant can receive instructions and administer life saving treatment while another operator drives. That's cost-effective communications.

FEATURES	MODEL E2	E4/E5	E7	E9
8-Character Alphanumeric Display	S	S	S	
11-Character Alphanumeric Display				S
Power-Up "Self Check"	S	S	S	S
900 MHz, 4 Watt (continuous duty)			S	
Extended Local Remote Capability	O	O	O	
Securenet Capability (UHF and 800 MHz only)	S	S	S	S
Fast Lock Synthesizer	S	S	S	S
Volume Set Tone	S	S	S	S
Dimmer Control	S	S	S	S
HearClear Audio Enhancement (900 MHz only)	S	S	S	S
External Alarm Capability	S	S	S	S
Talkaround	S	S	S	S
Stat-Alert PTT ID/Emergency	S	S	S	S
Stat-Alert, Call Alert & Sel Call Decode	S	S	S	S
8 Systems/8 Subfleets/10 Conventional Modes (800 and 900 MHz only)	S	S		
15 Systems/16 Subfleets/10 Conventional Modes (800 and 900 MHz only)			S	S
6 Systems/8 Subfleets/32 Conventional Modes (VHF and UHF only)	S	S		
8 Systems/16 Subfleets/32 Conventional Modes (VHF and UHF only)			S	S
15 Systems/10 Subfleets/10 Conventional Modes (VHF and UHF only)			O	O
Private Conversation Response with Call Alert Decode	S	S	S	S
Private Conversation List with Call Alert List		S	S	S
Unlimited Private Conversation and Call Alert			S	S
Telephone Interconnect List	S	S	S	S
Unlimited Telephone Interconnect			S	S
Operator Selectable Talkgroup Scan		S	S	S
Operator Selectable Multiple Private-Line	S	S	S	S
Dynamic Regrouping	S	S	S	S
Numeric/DTMF Keypad			S	S
Monitor Button	S	S	S	S
Automatic Multiple Site Select		S	S	S
Control Station Operation	O	O	O	
Full MIL-STD 810D Spec's	S	S	S	S
60 Second Time-Out Timer	S	S	S	S
External Speaker	S	S	S	S
Remote Mount Capability	O	O	O	S
DTMF Microphone	O	O	O	O

S = Standard O = Option

Can be replaced with optional



E7 Model

PRIVATE CONVERSATION Calls with "Call Alert" Capability—Allows a unit to engage in private conversations with other units in the system. The E2 model allows response only to another PRIVATE CONVERSATION call, while the E4, E5, E7 and E9 models allow for initiating PRIVATE CONVERSATION calls. Optional external alarm relays are available to alert a driver who's away, but near the vehicle.

Call

Individuals can establish private two-way conversations that exclude everyone else or alert another unit. Supervisory units can initiate a PRIVATE CONVERSATION call with anyone in the fleet.

Operator Selectable Multiple Private-Line (MPL)—Provides the operator with the ability to select 1 of 16 desired squelch codes through a simple input to the control unit. The code can be Digital Private-Line, Private-Line, or carrier squelch and the

Talkaround—For conventional modes, pressing the direct button on the control unit will allow your mobiles to bypass the repeater.

Dir

Provides direct mobile-to-mobile and mobile-to-portable communications, eliminating the need of a repeater, increasing flexibility in talk configurations.

STAT-ALERT Conventional Signalling Feature/Advantage

PTT ID/Emergency with Data Operated Squelch—Each time the Push-to-Talk Switch is pressed, the mobile's Unit ID is automatically displayed at the console. Field programming allows the PTT ID/Emergency features to be mode-slaved. Adding an optional switch enables operators to send an emergency message to a console, where their Unit ID can be displayed and an alarm

SECURENET Digital Capable Models (UHF and 800 MHz only)
Feature/Advantage

SECURENET Digital Capable Models—This model provides you with the capability to add Securenet encryption to your radio system. You can add the Securenet system today, or in the future, with the addition of an encryption module.

Voice security can now be an integral part of your communications system, with a properly designed Securenet system.

High Level Security—The Securenet system features sophisticated digital encryption (coding) techniques which prevent unintended listeners from overhearing any messages.

Your communication will remain private until you decide to make it public . . . not before. There is no need to swap radios or change frequencies, just switch to the coded mode . . . it's as simple as that. Protect your operators from unauthorized monitoring with the highest level of security.

Multiple Encryption Methods—Motorola offers several different system and operational features. All of the encryption types maintain the same high level of security Motorola is known for.

Motorola can tailor a Securenet system to meet your security needs—whether it is interoperability between groups, fast system access or equivalent range in the non-

Internal Electronic Code Storage—Each key is stored in a volatile electronic memory. Internal storage eliminates the need for key switches.

Encrypted information is restricted from unauthorized users since there is no visual access to the key. Electronic probing of a radio will not yield any information about the key.

Proper Code Detect—With this, the radio speaker will automatically mute if a transmitted code does not match the radio's programmed code.

You can only hear those transmissions encrypted with your individual key. Annoying noises typically heard on multi-coded channels are eliminated.

SPECTRA-E Radio for VHF, UHF, 800 MHz and 900 MHz SmartZone Operation

Performance Specifications
General

Mode Capacity:	Up to 250 modes, up to 10 conventional channels. (800 and 900 MHz) Up to 160 trunked modes, up to 32 conventional channels. (VHF and UHF)	
Dimensions:	2" H x 7.1" W x 7.5" L (5 x 18 x 19 cm) (4, 12 & 15 Watts)	2" H x 7.1" W x 8.6" L (5 x 18 x 21.8 cm) (30, 35 & 40 Watts)
Weight:	4.5 lbs (2.1 kg)	5.5 lbs (2.5 kg)
Metering:	All adjustments and alignments are performed electronically using an IBM Personal Computer, a Radio Interface Box (RIB) and field maintenance software	

Standard Model	Securenet Capable Model	Frequency	Operation	RF Power Output (Watts)	Max. Batt. Drain Received at Rated Audio @ 13.8V: Standby @ 13.8V	Max. Batt. Drain Received at Rated Audio @ 13.8V: Audio @ 13.8V	Max. Batt. Drain Transmit @ Rated Power
(E2)D35KGA5JE2__K (E4)D35KGA5JE4__K (E5)D35KGA5JE5__K	(E2)D35ZXA5JE2__K (E4)D35ZXA5JE4__K (E5)D35ZXA5JE5__K	**Transmit- 806-824, 851-869 MHz Receive- 851-869 MHz	12 VDC Neg Gnd	15	0.5A	2.5A	6.0A
(E4)D45KGA5JE4__K (E5)D45KGA5JE5__K (E7)D45KGA5JE7__K	(E4)D45ZXA5JE4__K (E5)D45ZXA5JE5__K (E7)D45ZXA5JE7__K			35*			13.5A
(E9)T45KGA5JE9__K	(E9)T45ZXA5JE9__K				0.7A	2.7A	13.7
(E7)D17KGA5JE7__K				4			4.5A
(E2)D27KGA5JE2__K (E4)D27KGA5JE4__K (E5)D27KGA5JE5__K	N/A	Transmit- 869-902, 935-941 MHz Receive- 935-941 MHz		12	0.5A	2.5A	7A
(E4)D37KGA5JE4__K (E5)D37KGA5JE5__K (E7)D37KGA5JE7__K	N/A			30			14.5A
(E9)T37KGA5JE9__K					0.7A	2.7A	14.7A
(E2)D44KGA5JE2__K	(E2)D44ZXA5JE2__K	433-470 MHz 403-433 MHz 450-482 MHz 482-512 MHz		20-40W Variable	0.5A	2.5A	12.5A
(E5)D44KGA5JE5__K (E7)D44KGA5JE7__K	(E4)D44ZXA5JE4__K (E5)D44ZXA5JE5__K (E7)D44ZXA5JE7__K						
(E9)T44KGA5JE9__K	(E9)T44ZXA5JE9__K				0.7A	2.7A	12.7A
(E2)D43KGA5JE2__K (E4)D43KGA5JE4__K (E5)D43KGA5JE5__K (E7)D43KGA5JE7__K	(E2)D43ZXA5JE2__K (E4)D43ZXA5JE4__K (E5)D43ZXA5JE5__K (E7)D43ZXA5JE7__K	136-162 MHz 146-174 MHz		25-50W Variable	0.5A	2.5A	13A
(E9)T43KGA5JE9__K	(E9)T43ZXA5JE9__K				0.7A	2.7A	13.2A

*30 Watts in Talkaround **Reduced deviation from 821-824 (TX) and 866-869 (Talkaround) except in test mode

Transmitter

Output Impedance:	50 ohms
Spurious & Harmonics:	More than 70 dB below carrier (per EIA specs: RS-152B) VHF: – 75 dBC UHF: – 70 dBC
Frequency Stability:	
800 & 900 MHz:	± 0.00015% of assigned center frequency – 30°C to + 60°C ambient
UHF:	0.00025% of assigned center frequency – 30°C to + 60°C ambient
VHF:	± 0.0005% optional* ± 0.0002% – 30°C to + 60°C
Modulation:	15K0F2D 16K0F3E 16K0F1D 20K0F1E (VHF, UHF & 800 MHz) 14K0F1D, 14K0F2D, 14K0F3E, 17K6F1E (800 MHz) 10K0F1D, 11K0F2D & 11K0F3E (900 MHz)
Audio Sensitivity:	0.080V ± 3 dB for 60% max. deviation @ 1000 Hz
FM Hum and Noise:	– 40 dB (800 and 900 MHz)
EIA Method	– 45 dB (UHF) – 60 dB (VHF)
Audio Response:	EIA + 1, – 3 dB of 6 dB/octave pre-emphasis characteristic from 300 to 3000 Hz
Audio Distortion:	VHF, UHF & 800 MHz: Less than 3%
(measured per EIA)	900 MHz: Less than 2%
Maximum Frequency Separation:	(800 MHz) 18 MHz (900 MHz) 6 MHz (UHF) 32 MHz (VHF) 28 MHz

Speaker

Dimensions:	5.5" x 2.5" (14 x 6 cm) (excluding mounting bracket)
Weight:	1.5 lbs (0.7 kg)

Remote Mount Control Head—E2, E4, E5, E7 Models

Dimension excluding mounting bracket:	2"H x 7"W x 2.2"L (5 x 18 x 5 cm)
Weight:	10.5 oz. (0.3 kg)

E9 Model Control Head

Dimension excluding mounting bracket:	6.5"H x 3.4"W x 1.7"L (16.6 x 8.7 x 4.3 cm)
Weight:	19 oz. (0.54 kg)

Security

Encryption Type:	Digital
Coding Method:	Multi-register non-linear combiner
Number of Codes:	Dependent on encryption options
Synchronization:	Self synchronizing or counter addressing
Code Key Initialization:	Internally derived pseudo-random initializing vector
Code Key Generator:	External hand held microprocessor controlled key variable loader
Code Storage:	Volatile electronic memory
Analog to Digital Conversion:	Continuously Variable Slope Delta Modulation (CVSD)
Voice Sample Rate:	12 K bit/Sec

*Typical Specifications

Receiver

	VHF	VHF with pre-amp	UHF	UHF with pre-amp	800 MHz	900 MHz
Sensitivity						
20 dB Quieting:	50 µV	30 µV	50 µV	30 µV	40 µV	40 µV
EIA SINAD:	35 µV	20 µV	35 µV	20 µV	30 µV	30 µV
Selectivity:						
EIA SINAD	– 90 dB	– 90 dB	– 83 dB @ ± 12.5 kHz	– 85 dB @ ± 12.5 kHz	– 80 dB @ ± 25 kHz	– 70 dB @ ± 12.5 kHz
Intermodulation:	– 85 dB	– 80 dB	– 85 dB @ ± 12.5 kHz	– 80 dB @ ± 12.5 kHz	– 80 dB @ ± 25 kHz	– 70 dB @ ± 12.5 kHz
Spurious & Image Rejection:	– 90 dB	– 85 dB	– 90 dB	– 85 dB	– 90 dB	– 90 dB
Max. Frequency Separation:	28 MHz	28 MHz	32 MHz	32 MHz	18 MHz	6 MHz
Channel Spacing:	30 kHz	30 kHz	30 kHz	30 kHz	25 kHz or 12.5 kHz from 855-869 MHz	12.5 kHz
Frequency Stability:	± 0.00025% of assigned center frequency from – 30°C to + 60°C ambient (UHF) ± 0.0005%. Optional* ± 0.0002% – 30°C to + 60°C (VHF) ± 0.00015% of assigned center frequency from – 30°C to + 60°C ambient (800 & 900 MHz)					
Input Impedance:	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Audio Output:	5 watts @ less than 3% distortion—10 watts opt.					
FCC Designation:	VHF: AZ492FT3775, 50-60 watt UHF: AZ492FT4789 - 438-470 MHz Low Power Range 2 AZ492FT4790 - 403-512 MHz 40 watt 800 MHz: AZ492FT5752 - 35 watt AZ492FT5753 - 18 watt 900 MHz: AZ492FT5754 - 30-35 watt AZ492FT5755 - 18 watt					

MIL-STD 810D Testing

STANDARD	METHOD	PROCEDURE	TEST	RADIO PERFORMANCE
MIL-STD 810D	514.3	II Category 3	Vibration (Loose cargo transport)	Meets or exceeds published specs following vibration testing.
MIL-STD 810D	514.3	I Category 10	Vibration (Application induced)	Meets or exceeds published specs following vibration testing.
MIL-STD 810D	515.3	VI	Shock (Bench handling)	Meets or exceeds specs following shock testing.
MIL-STD 810D	516.3	I	Shock (Functional)	Meets or exceeds specs following shock testing.
MIL-STD 810D	516.3	V	Shock (Crash hazard)	Meets or exceeds specs following shock testing.
MIL-STD 810D	506.2	I	Rain (Wind driven)	Meets or exceeds specs following rain testing.
MIL-STD 810D	509.2	I	Salt Fog	Meets or exceeds specs following salt fog testing.
MIL-STD 810D	510.2	I	Sand and Dust	Meets or exceeds specs following sand and dust testing.

For additional environmental specifications information refer to the MIL-STD 810 document RO-1-193.

MOTOROLA

1301 E. Algonquin Road, Schaumburg, Illinois 60196
Telephone toll free 1-800-247-2346
In Canada: 4000 Victoria Park Avenue
North York, Ontario M2H3P4 Telephone: (416) 499-1441

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Winner 1988 Malcolm Baldrige National Quality Award

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R3-1-156A

MOTOROLA

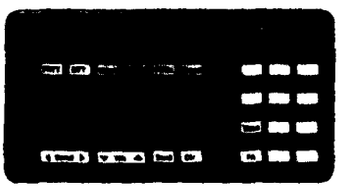
MCT 4800 SPECTRA
Transit Mobile Radio

Feature/Advantage

Rugged and Reliable—A die-cast aluminum chassis provides maximum component protection against harsh mobile environments. MCT 4800 models meet the stringent demands of MIL-STD 810D specifications for protection against shock, vibration, rain, dust, and salt fog.

This radio provides maximum toughness and reliability, even in harsh environments. On power up, the control unit gives a positive indication that the radio has passed its own internal "self-check."

User Friendly Operation—Human-engineered controls make operation of even the most sophisticated features easy. An 11-character alphanumeric display provides plain language indication of radio operations.



Less time is spent training your radio operators, leaving more time for getting the job done.

Feature/Advantage

Remote Channel Selection—The MCT 4800's radio transceiver is controlled by the Metrocom Fleet Controller; this CAD (Computer Aided Dispatch) remote selects the channel on which the MCT 4800 will operate.

Automatic and remotely controlled channel selection by the host computer or the controller provides coordinated control of channel assignment, maximizing the efficient use of radio channels.

Mode-Slaved Operation—Communications channel characteristics such as transmit and receive frequencies, time-out-timer duration and Private-Line squelch codes, are independently programmed on a per-mode basis.

System flexibility is increased, allowing multiple operating

Emergency Alarm—An operator-activated emergency alarm immediately flashes on the controller's screen, accompanied by an audible alert.

Operator safety is improved. Whenever trouble arises, the operator can notify the controller almost instantly. The alarm button can be hidden from view so the operator can activate the alarm without drawing attention.

Broadband Transmit and Receive—This radio provides wide space transmit and receive capabilities of up to 28 MHz in both the VHF and the UHF Bands and 15 MHz in the 800 MHz band.

The wide space capability provides true multiple department or fleet communications within the appropriate frequency range.

Feature/Advantage

Time-Out Timer—Automatically sounds an alert tone and shuts off the transmitter after a pre-programmed time interval (from 30 seconds to 3.5 minutes). This feature can be changed or overridden on a per-mode basis through field programming.

Prevents lock-up of a repeater or tying-up of a channel by prolonged keying of the transmitter, helping provide uninterrupted operation of your system.

Integrated Technology—Virtually all radio functions are controlled by an advanced CMOS microprocessor and specially designed circuits. All connections except power and RF connectors use reliable gold plating.

Provides simple, automatic and reliable communications. It also eliminates the need for channel elements or retuning the unit as the system grows.

Text Messaging—The MCT 4800 can receive and display text messages sent from the controller to the operator(s). A total of eight messages, with a maximum of 80 characters each, can be stored at any given time.

This feature allows the controller to send messages to a coach or group of coaches. If a message is particularly important, and the operator will be held accountable for the directions given, a tone can be sent to alert the operator to acknowledge the message. The controller's computer logs all acknowledgements, allowing the controller to determine who has and has not read the message sent.

Options

Mechanical Function Monitoring—This option allows the controller to monitor up to 8 mechanical functions, e.g. air pressure, within the vehicle.

This option informs the controller of potential mechanical breakdowns before they occur, without involving the operator. Helps reduce coach maintenance costs, as well as preventing time consuming breakdowns.

Status/Message—Provides up to 16 dedicated buttons which can send predefined status or message conditions from the coach to the base. This capability can be ordered as a supplemental housing that mounts directly above the

Public Address (Operator)—This option allows the operator to speak to other people in the coach through a loud speaker.

When the operator is removed from other people in the coach, he can speak to them with the same handset used for radio communications.

Public Address (Controller)—The controller has access to the public address system in all of the coaches that they normally communicate with.

The controller can selectively call an individual or a group

MCT 4800 SPECTRA Transit Mobile Radio

Performance Specifications

General

Channel Capacity:	128 Conventional Modes
Dimensions:	2.0" H x 7.0" W x 8.6" L (5 x 18 x 21.5 cm), Transceiver Only; 4.0" H x 7.0" W x 8.6" L (10 x 18 x 21.5 cm) Transceiver and Optional Signpost Location Receiver
Weight:	5.5 lbs. (2.5 kg), Transceiver Only; 10.5 lbs. (4.8 kg), Transceiver and Optional Signpost Location Receiver
Metering:	None: All adjustments and alignments are performed electronically using an IBM Personal Computer, a Radio Interface Box (RIB) and the radio service software.

Model	Frequency	Operation	Minimum RF Power Output*	Maximum Battery Drain		
				Standby @ 13.8V	Receive at Rated Audio @ 13.8V	Transmit @ Rated Power
T43KMA7H04-K	136-162 MHz 146-174 MHz	12V DC Neg. Gnd.	25-50W VARIABLE	.7A	2.7A	13.2A
T44KMA7H04-K	450-482 MHz 482-512 MHz		20-40W VARIABLE			12.7A
T45KMA7H04-K	806-866 MHz		35W			13.7A

*Intermittent Minimum RF Power Output

Transmitter

Output Impedance:	50 Ohms
Spurious & Harmonics:	More than 70 dB below carrier (per EIA specs. RS152B)
Frequency Stability:	±0.00025% of assigned center frequency −30°C to +60°C
Modulation:	16KOF3E, 16KOF1D, 15KOF2D, 20KOF1E (VHF, UHF) 16KOF1D, 15KOF2D, 16KOF3E (800 MHz)
Audio Sensitivity:	0.080V ± 3dB for 60% max. deviation @ 1000 Hz
FM Hum and Noise:	VHF: −50 dB, UHF: −45 dB, 800 MHz: −40 dB
Audio Response:	+1, −3 dB of 6 dB/ octave pre-emphasis characteristic from 300 to 3000 Hz
Audio Distortion:	3% at 1000 Hz at 60% deviation
Maximum Frequency Separation:	VHF: 28 MHz, UHF: 32 MHz, 800 MHz: 15MHz

Receiver

Receiver Profile:	VHF		UHF		800 MHz
Channel Spacing:	30 kHz		25 kHz		25 kHz
Optional Pre-Amp:	yes	no	yes	no	no
Sensitivity **20 dB Quieting:** **12 dB (EIA SINAD):**	.30 μV .20 μV	.50 μV .35 μV	.30 μV .20 μV	.50 μV .35 μV	.40 μV .30 μV
Selectivity: EIA	−90 dB	−90 dB	−85 dB	−85 dB	−80 dB
Intermodulation: EIA	−80 dB	−85 dB	−80 dB	−85 dB	−80 dB
Spurious & Image Rejection:	−85 dB	−90 dB	−85 dB	−90 dB	−90 dB
Maximum Frequency Separation:	28 MHz		32 MHz		15 MHz

Input Impedance:	50 Ohms
Audio Output:	10 Watts at 3% Distortion
Frequency Stability:	±0.00025% of assigned center frequency −30°C to +60°C ambient
FCC Designation:	VHF: ABZ89FT3732 UHF: ABZ89FT4736 800 MHz: ABZ89FT57

Speaker

Dimensions:	5.5" x 2.5" (14 x 6 cm) (excluding mounting bracket)
Weight:	1.5 lbs. (0.7 kg)

Remote Mount Control Head

Dimension excluding mounting bracket:	3.4" H x 6.5" W x 1.7" L (87 x 166 x 43 mm)
Weight:	19 oz. (0.54 kg)

Military Standard 810D Methods/Procedures

Vibration:	Method 514.3, Procedure I & II
Shock:	Method 516.2, Procedure I, V & VI
Rain:	Method 506.2, Procedure I
Salt Fog:	Method 509.2, Procedure I
Sand/Dust:	Method 510.2, Procedure I

Winner 1988 Malcolm Baldrige National Quality Award

MOTOROLA

MOTOROLA Communications

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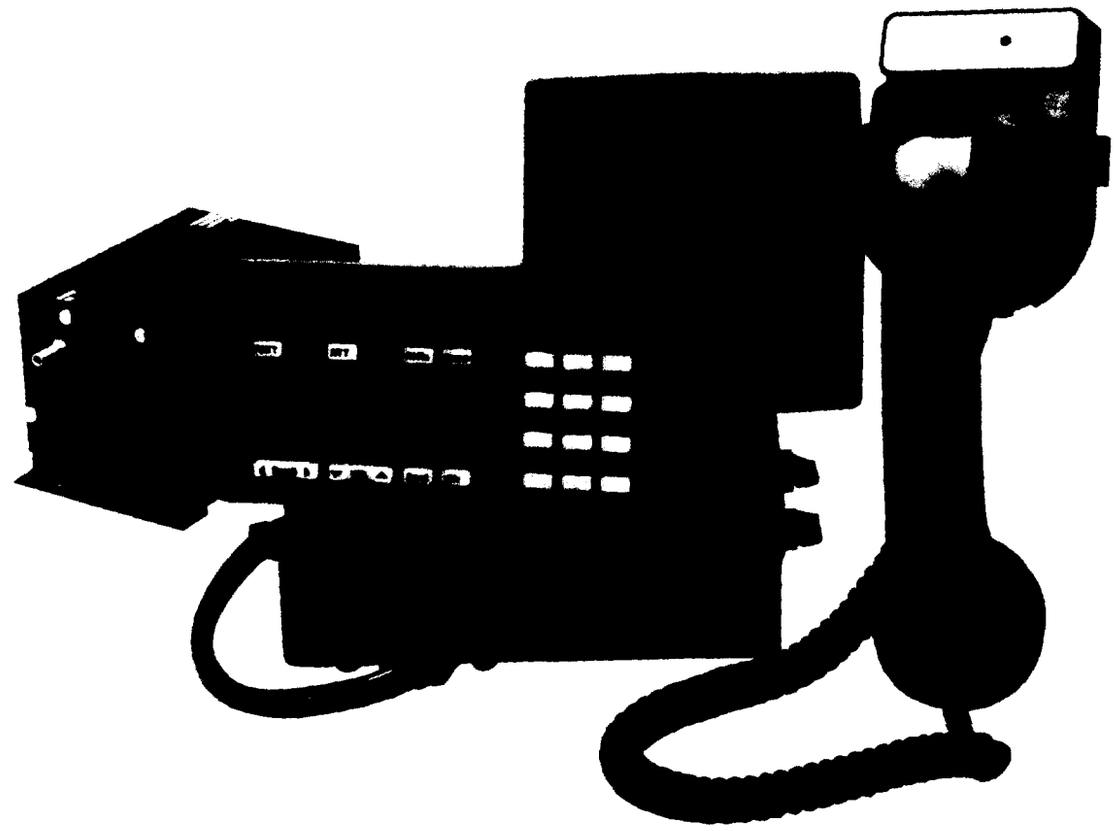
R3-1.1-137

MOTOROLA

MCT 3600 Trunked SPECTRA
Transit Mobile Radio



Feature/Advantage

Rugged and Reliable—A die-cast aluminum chassis provides maximum component protection against harsh mobile environments. MCT 3600 models meet the stringent demands of MIL-STD 810D specifications for protection against shock, vibration, rain, dust, and salt fog.

This radio provides maximum toughness and reliability, even in harsh environments. On power up, the control unit gives a positive indication that the radio has passed its own internal "self-check."

User Friendly Operation—Human-engineered controls make operation of even the most sophisticated features easy. An 11-character alphanumeric display provides plain language indication of radio operations.

Less time is spent training your radio operators, leaving more time for getting the job done.

Feature/Advantage
Route/Run Entry Mode Operation—An eight-digit alpha-numeric code may be entered onto the host computer system by the operator. The controller can correct the entry if necessary, and display the right number on the VF display of
Emergency Alarm—An operator-activated emergency alarm immediately flashes on the controller's screen, accompanied by an audible alert.
Operator safety is improved. Whenever trouble arises, the

Options

Mechanical Function Monitoring—This option allows the controller to monitor up to eight mechanical functions, i.e. air pressure, within the vehicle.

This option informs the controller of potential mechanical breakdowns before they occur, without involving the operator. Helps reduce vehicle maintenance costs, as well as preventing time consuming breakdowns.

Status/Message—Provides up to 16 dedicated buttons which can send predefined status or message conditions from the coach to the control center. This capability can be ordered as a supplemental housing that mounts directly above the control unit (8 or 16 status/message buttons available) or as an option to be activated by the radio's keypad (8 status/message buttons).

Status/Message capability allows the operator to quickly inform the controller of the unit's current operating condition without interrupting normal talkgroup communications. That means more efficient task coordination for your team. What's more, convenient controls let your operator stay in touch with minimal effort, reducing fatigue.

Public Address (Operator)—This feature allows the operator to speak to other people in the vehicle through a loud speaker.

When the operator is removed from other people in the vehicle, he can speak to them with the same microphone used for radio communications.

Public Address (Controller)—The controller has access to the public address system in all of the coaches in the fleet.

The controller can selectively call an individual or a group of individuals and broadcast a message across the public address system of their coach(es).

Delayed Power Down—This option allows the radio to remain on for a specified period of time (programmable from 0 seconds to 18 hours) after the ignition switch in the vehicle has been turned off.

This allows for continued communications for an extended time after the operator has turned off the ignition switch in the coach. The controller can communicate with the operator and the operator can still hear talkgroup communications for as long as 18 hours after the radio would normally be turned off.

HT600 Series "HANDIE-TALKIE" FM Radio

Performance Specifications
All Specifications Are Per (EIA) RS 316B Procedures

Model Series:	H33SVU, H43SVU		H34SVU, H44SVU	
Frequency:	136-150.8 or 146-162 or 157-174 MHz		403-433 or 438-470 or 470-500** or 488-520** MHz	
Power Supply:	One rechargeable nickel cadmium battery			
Dimensions: Less Antenna & Knobs H x W x D In Inches	3.89 x 2.7 x 1.38" (98 x 66 x 35mm)			
Battery Height/Wt.:	**Height:**	**Weight:**	**Height:**	**Weight:**
Ni-Cd Batteries: Medium Capacity: High Capacity:	2.45" (62.2mm) 3.36" (85.3mm)	w/Radio 612g/21.6 oz. 686g/24.2 oz.	2.45" (62.2mm) 3.36" (85.3mm)	w/Radio 612g/21.6 oz. 686g/24.2 oz.
Battery Life (Hrs):*	**Low Power**	**High Power**	**Low Power**	**High Power**
Ni-Cd Batteries: Medium Capacity: High Capacity:	8 hours 14 hours	5 hours 8 hours	8 hours 13 hours	5 hours 8 hours
Sealing:	O-ring design to withstand rain testing per Mil Std. 810C/D			
Shock & Vibration:	Impact resistant polycarbonate housing exceeding EIA RS-316B			
Dust & Humidity:	Weather resistant housing exceeding EIA RS-316B			

5-5-90 Duty Cycle with Battery Saver

Transmitter	**VHF**		**UHF**	
RF Output NI-CD @ 10.0V:	**High** 5W	**Low** 2W	**High** 4W	**Low** 2W
Frequency Separation: Allowable Separation (w/ degradation):	6 MHz No Deg. 16 MHz*		8 MHz No Deg. 16 MHz*	
Frequency Stability −30° to +60°C: 25°C Ref.	+/−.0005%		+/−.0005%	
Modulation:	20K0F2D, 20K0F3E			
Spurs/Harmonics:	−60 dB		−53 dB	
FM Noise:	−45 dB		−45 dB	
Audio Response: (From a 6 dB/Oct. Pre-Emphasis; 300 to 3000 Hz)	+1, −3 dB		+1, −3 dB	
Audio Distortion: (@ 1000 Hz, 60% Rated Max. Dev.)	5%		5%	
FCC Designation: Low Power High Power	AZ489FT3699 AZ489FT3700		AZ489FT4700 AZ489FT4701	

***Constrained by Sub-Band Limitations.**

****470-500 MHz and 488-520 MHz available only on 4 Watt models.**

Receiver	**VHF**	**UHF**
Channel Spacing:	30kHz (25kHz Int.)	25kHz
Modulation Acceptance:	>7.5 kHz	>7.5kHz
Frequency Separation: Allowable Separation (w/ degradation):	6 MHz No Deg. 16 MHz*	8 MHz No Deg. 16 MHz*
Sensitivity 20 dB Quieting: 12 dB Sinad: Squelch:	.35μV .25μV .18μV	50μV 35μV .22μV
Selectivity: (EIA Sinad)	-70dB (-68dB@25kHz)	−70 dB
Intermodulation:	-70dB (-68dB@25kHz)	−68 dB
Frequency Stability −30° to +60°C Ref.	+/−.0005%	+/−.0005%
Spur Rejection: Image Rejection:	−70 dB −65 dB	−70 dB −65 dB
Audio Output: (@ Less Than 5% Dist.)	500 mW	500 mW
EIA Usable Bandwidth	6kHz min.	5kHz min.
Low Power High Power	AZ489FT3699 AZ489FT3700	AZ489FT4700 AZ489FT4701

Applicable MIL-STD.	**810C Methods/Procedures**	**810D Methods/Procedures**

MCT 3600 Trunked SPECTRA Transit Mobile Radio

Performance Specifications

General

Channel Capacity: 20 trunked channels

Dimensions: 2.0" H x 7.0" W x 8.6" L (5 x 18 x 21.5 cm). Transceiver Only; 4.0" H x 7.0" W x 8.6" L (10 x 18 x 21.5 cm) Transceiver and Optional Signpost Location Receiver

Weight: 5.5 lbs. (2.5 kg). Transceiver Only; 10.5 lbs. (4.8 kg). Transceiver and Optional Signpost Location Receiver

Metering: All adjustments and alignments are performed electronically using an IBM Personal Computer, a Radio Interface Box (RIB) and field maintenance software.

			RF Power	Maximum Battery Drain		
Model	**Frequency**	**Operation**	**Output**	**Standby @ 13.8V**	**Receive at Audio @ 13.8V**	**Transmit @ Rated Power**
T44KGA5J04-K	TRANSMIT 450-482, 482-512 MHz RECEIVE 450-482, 482-512 MHz	12 VDC Neg. GND	20-40 W variable	0.7A	2.7A	12.7A
T45KGA5J04-K	TRANSMIT 806-821, 851-866 MHz RECEIVE 851-866 MHz		35 W			13.7A

Transmitter

Output Impedance:	50 Ohms
Spurious & Harmonics:	More than 70 dB below carrier (per EIA specs. RS-152B)
Frequency Stability:	±0.00025% of assigned center frequency −30°C to +60°C ambient
Modulation:	16KOF3E, 16KOF1D, 15KOF2D, 20KOF1E (UHF) 15KOF2D, 16KOF3E, 16KOF1D (800 MHz)
Audio Sensitivity:	0.080V ± 3dB for 60% max. deviation @ 1000 Hz
FM Hum and Noise: EIA Method	UHF: −45 dB, 800 MHz: −40 dB
Audio Response:	+1, −3 dB of 6 dB/octave pre-emphasis characteristic from 300 to 3000 Hz
Audio Distortion: (measured per EIA)	3% at 1000 Hz at 60% deviation
Maximum Frequency Separation:	UHF: 32 MHz; 800 MHz: 15 MHz

Speaker

Dimensions:	5.5" x 2.5" (14 x 16 cm) (excluding mounting bracket)
Weight:	1.5 lbs. (0.7 kg)

Remote Mount Control Head

Dimension excluding mounting bracket:	3.4" H x 6.5" W x 1.7" L (87 x 166 x 43 mm)
Weight:	19 oz. (0.54 kg)

Military Standard 810D Methods/Procedures

Vibration:	Method 514.3, Procedure I & II
Shock:	Method 516.2, Procedure I, V & VI
Rain:	Method 506.2, Procedure I
Salt Fog:	Method 509.2, Procedure I
Sand/Dust:	Method 510.2, Procedure I

Receiver

Receiver Profile:	UHF		800 MHz
Channel Spacing:	25 kHz		25 kHz
Optional Pre-Amp:	yes	no	no
Sensitivity 20 dB Quieting: **EIA SINAD:**	.30 μV .20 μV	.50 μV .35 μV	.40 μV .30 μV
Selectivity: (EIA SINAD)	−85 dB	−83 dB	−80 dB @ ±25 kHz
Intermodulation: (EIA SINAD)	−80 dB	−85 dB	−80 dB @ ±25 kHz
Spurious & Image Rejection:	−85 dB	−90 dB	−90 dB
Input Impedance:	50 Ohms		
Audio Output:	10 Watts at less than 3% distortion		
Max. Frequency Separation:	32 MHz (UHF) 15 MHz (800 MHz)		
Frequency Stability:	±0.00025% of assigned center frequency −30°C to +60°C ambient		
FCC Designation:	UHF: ABZ89FT47 800 MHz: ABZ89FT57		

Winner 1988 Malcolm Baldrige National Quality Award

MOTOROLA

Support Services

Wherever Motorola sells, our product is backed by service. In the U.S., we have 900 authorized or company-owned centers. In addition, our products are serviced throughout the world by a wide network of company or authorized independent distributor service organizations.

1301 E. Algonquin Road, Schaumburg, Illinois 60196
Telephone (708) 397-1000 or toll-free 1-800-247-2346 ext. 101

Specifications subject to change without notice.

R3-8.7-67

MOTOROLA

HT600 SERIES "HANDIE-TALKIE"

Synthesized FM Portable Radio

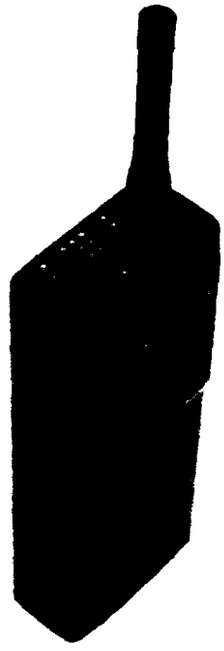
2/6 Channels

136-150.8 MHz 2 or 5 Watts; 146-162 MHz 2 or 5 Watts;
157-174 MHz 2 or 5 Watts; 403-433 MHz 2 or 4 Watts;
438-470 MHz 2 or 4 Watts; 470-500 MHz 4 Watts;
488-520 MHz 4 Watts

Features:

- Small Size and Weight

HT600 Synthesized Portable Radio



RADIOS DESIGNED WITH VALUE IN MIND

The HT600 HANDIE-TALKIE portable radio is designed to meet the demands of your tough environments while providing cost effective, reliable communications. It exceeds 11 of the U.S. Government's Military Standards 810C and D, including Method 506.1, procedure II for rain. It also meets all EIA RS316B specifications. The design incorporates radial side loaded O-ring gaskets; providing protection from water and dust intrusion, and resistance to shock and vibration.

The HT600 radio is manufactured to provide product integrity combined with proven electronic technology. All to help provide a greater communications value to you.

Systems Advances/ADVANTAGES

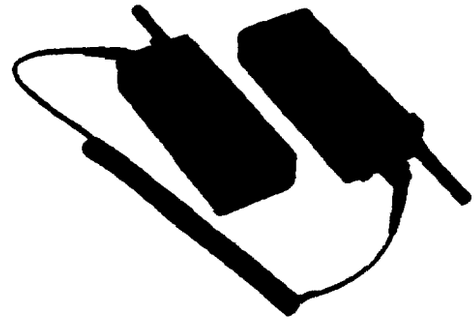
Up to Six Channel Operation — The HT600 radio is available with up to six channels.

The HT600 provides the capability and flexibility to work in a wide variety of small and medium sized systems.

Wide Spaced Transmit and Receive — In VHF, Transmitter and/or Receiver frequencies can be separated by up to 6 MHz with no degradation of performance. In UHF they can be separated by up to 8 MHz.

Users with multiple channels or with a need for multiple system access can now get the flexibility of wider bandwidth with the assurance of full performance.

Multiple DIGITAL PRIVATE-LINE and PRIVATE-LINE Coded Squelch — Coded squelch allows only those calls with your particular code to be heard and can be enabled on a per channel basis. Up to three codes are available per radio. You can choose from 80 DIGITAL PRIVATE-LINE codes and 28 of the industry's



Radio Cloning — Each HT600 radio has a unique data stored 'personality' with frequencies, squelch codes, and other operating characteristics. Using a simple cloning cable you can duplicate one radio's characteristics into another HT600 of the same sub-band.

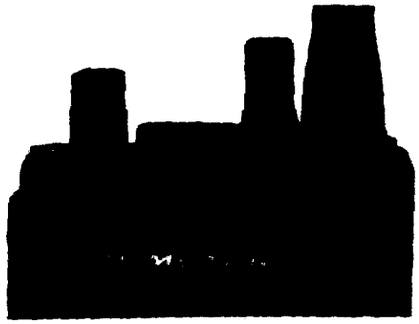
Independent work groups operating on different frequencies will appreciate the ease with which a radio can be moved from one group to another. With cloning the process is faster, easier and less expensive than ever before.

Field Programmable – The HT600 radio utilizes a reprogrammable EEPROM codeplug, which permits operating characteris-

Operator Features/ADVANTAGES

Power Up Alert — The microcomputer performs an internal self-check and gives an alert tone to signal the user that the radio is working properly each time it is turned on.

The user knows the radio is working each time it is turned on. This reduces the possibility of personnel unknowingly putting non-working equipment into use.



Easy Channel Selection — One easy-to-grip knob selects both channel and squelch code.

Operation is fast, easy and dependable.

Universal Capability — The HT600 portable radio has a top mounted Universal connector for attaching a variety of audio accessories.

The use of audio accessories provides the user added convenience by allowing talk and listen operation without removing the radio from its carry case or belt.

Channel Busy Light — The dual function LED glows with a flashing green light when there is channel activity on a PL or DPL protected channel.

Adds to user convenience, allowing a quick glance at the radio control top to determine if a channel is free.

Battery Status/Transmit Indicator — The red/orange dual function light emitting diode (LED) activates when transmitting and glows steadily. When the battery requires charging the LED blinks.

Users know when the battery is low, allowing them to charge or replace the existing battery. This can help avoid the potentially hazardous situation of your personnel inadvertently being left without communications.

Monitor Button — The monitor button is conveniently located on the side panel of the radio, for quick and easy one-handed activation. It allows the user to monitor the channel for activity before transmitting.

The location of the monitor button allows the user to monitor a channel using only one hand, leaving a hand free for other activities.

Reliability and Performance Improvements/ADVANTAGES

Small Size and Lightweight — The HT600 housing ranges in size from approximately 23.6 to 27 cubic inches. Weight ranges from approx. 21.6 to 24.2 ounces. Both depending on battery size.

Users will have communications without cumbersome equipment. The size allows the user to perform his or her job with a full range of motion. The light weight can be less fatiguing in a work shift.

Proven Superior Reliability — The Motorola Accelerated Life Test (ALT) was used in the design of the HT600. It simulates five years of field stress in a few weeks; helping identify possible failures brought on by field stress and abuse. Once identified they are designed out of the radio before it reaches your hands.

Motorola radios are designed to minimize the possibility of costly repairs and inconvenient down time.

Choice of Power Levels — HT600 is available in 2 or 5 watts in VHF and 2 or 4 watts in UHF.

A choice of power levels allows you to design the system that meets your specific coverage needs.

Improved Audio Design — Advanced technology has been implemented in the HT600 audio system to provide improved audio performance.

The HT600 is designed to provide more natural and pleasant sounding audio in low noise environments and clear, easy to understand audio in high noise environments.

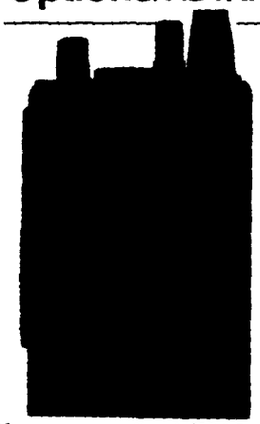
Battery Saver — The battery saver technology increases the length of operations between charges by reducing current drain. The advanced microcomputer is able to temporarily 'shut off' non-required radio components during periods of inactivity.

The battery saver can provide longer duty cycles. By operating the radio at a lower level of current drain, personnel are less likely to have the inconvenience of battery switching during their shift.

Rugged Design — The housing is constructed of highly durable, impact resistant, molded polycarbonate compound. O-rings and seals are utilized to provide extra resistance against dirt, dust and water intrusion.

HT600 is designed to take a beating on the job and keep talking. A durable radio can help save money on replacement and repairs.

Options/ADVANTAGES



DTMF Encoding — Optional 3 X 4 keypad encodes DTMF tones quickly and easily for access to the land-line phone network and for remote control. DTMF encoding is available in manual dial, timed tone (auto-dial), and ANI versions.

You can use the HT600 portable for radio, telephone, and remote control communications. It was designed with a variety of capabilities to meet your applications.

Choice of Manual Dial or User-Programmable Auto-Dial — In manual mode simply hold the push-to-talk while depressing the keypad buttons to make a phone call. With auto-dial, you can store up to nine telephone numbers or remote control codes that you use most frequently. Last number redial is also included.

Enables fast, effective and easy operation of the unit. As compact as the radio is, it is still easy to operate and use. With auto-dial, stored numbers can be quickly recalled and automatically dialed.

Approvals for Operation in Hazardous Atmospheres — For those applications requiring the use of portable radios in hazardous atmospheres, both low and high powered HT600 Radios are approved by Factory Mutual as intrinsically safe for use in Class I, Groups C and D, and Class II, Groups E, F and G. In addition, all models of the HT600 line are approved as non-incendive for use in Class I, Groups A, B, C, and D atmospheres.

Time-Out Timer — Transmission is limited to a 60 second duration. The transmission is automatically terminated after 60 seconds and an audible alert tone is emitted to signal this condition to the operator. After de-keying, the operator can again key-up for the next transmission.

Prevents inadvertent or prolonged transmitter keying which ties up a repeater or a channel for all co-channel users.

QUIK-CALL II Decode (Selective Call Signalling/Portable Paging) — With a QUIK-CALL decoder, the HT600 radio, when placed in the QUIK-CALL mode, will only receive messages preceded by the individual radio's coded signal. When the correct signal is received an audible alert tone is generated to help assure that the user is aware of the transmission. After the alert tone the radio operates in the normal talk and listen mode until reset to the QUIK-CALL mode. A two-tone paging encoder system is required for operation.

With QUIK-CALL II decoding, the HT600 HANDIE-TALKIE radio can operate as a two-way radio, pager or as a 'Talk back' pager with the new Motorola People Finder System. This provides you with system flexibility and keeps your personnel out of the communications flow until you want them. Since operators hear only messages intended for them, they are spared the distraction of channel traffic, which can help increase productivity.

PAC•RT/PAC•PL Vehicular Repeater Operation — Low power HT600 models can interface with PAC•RT or PAC•PL vehicular repeaters. Just order the H804 option. PAC•RT or PAC•PL repeater access enables portable communications that utilize the power of a mobile radio.

PAC•RT compatibility means that the operator can leave the vehicle to perform a job and still maintain contact with other mobiles, portables or the base via the mobile repeater.

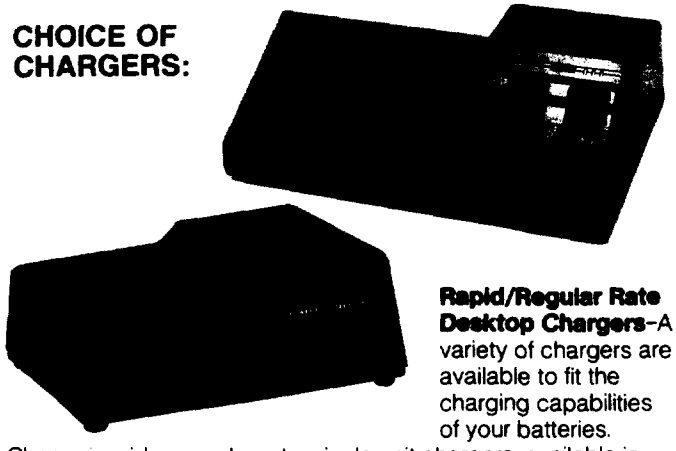
Accessories

Choice of Carrying Accessories–A variety of carry accessories are available for your comfort and convenience. Our radio cases are made of top quality leather and are available in sizes designed to fit your radio and battery. Cases are available with standard belt loop or swivel back covers, with a restraining T-strap. The HT600 radio is also available with a simple and economical belt clip carry holder or with the convenient belt clip, which comes with every package model HT600 radio.

Choice of Batteries–Nickel-Cadmium rechargeable batteries are available in dual charge rates. Choice of size is medium or high capacity. All batteries are easy-to-change, slide-on type that lock securely. Battery choices are available to provide your personnel the optimal combination of power and duty cycle with a minimum size and weight increase to the radio.

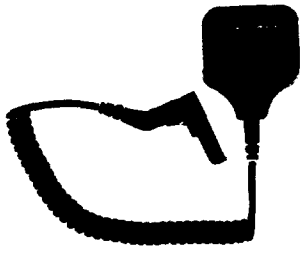
Battery housings are ultrasonically welded and separate from the radio compartment providing protection against shocks and drops.

CHOICE OF CHARGERS:



Rapid/Regular Rate Desktop Chargers–A variety of chargers are available to fit the charging capabilities of your batteries. Choose rapid or regular rate, single unit chargers; available in 117V, 220V or 240V configurations. Rapid rate six unit chargers are available in 117V or 220V/240V AC configurations. The rapid chargers are equipped with red and green lights to indicate: 1) Rapid charging; 2) Charge complete. All desktop units will accept any of the battery sizes, with or without radio attached.

Speaker/Microphone/Antenna (SMA) (UHF Only)–A special public safety remote speaker microphone accessory has a top mounted antenna, providing additional antenna height for better radiation.



Remote Speaker Microphone–A speaker microphone is available to provide remote talk and listen capability. By attaching the microphone to the Universal connector, located on the top of the radio, you can use the remote speaker 'mic' to transmit or receive while the radio remains comfortably on the belt or in the case.

Motorola Vehicular Adapter (MVA)–This rugged console features a convenient connection to the HT600 portable via the universal connector on the top of the radio to a fixed connector on the MVA unit. The portable simply slides into the pocket of the MVA and then snaps down into the unit for a secure connection. This unit provides a three hour charging rate (dual charge battery) and includes a remote microphone, external 12-watt speaker, and an optional mobile antenna.

This all new MVA provides a perfect complement to your HT600 portable radio. The new fixed connector block means improved reliability of radio to MVA connection. Easy connection, quick charge rate and various options combine to provide the user with benefits of vehicular communications while maintaining the flexibility of a portable radio.

Vehicular Charger–The Vehicular Charger allows an HT600, MT1000, MTX-800 and MTX-900 portable to charge at a 16 hour

MOTOROLA

MT1000 SERIES "HANDIE-TALKIE"

Synthesized FM Portable Radio

Rotary/Display Models
30-36 MHz; 36-42 MHz; 42-50 MHz - 6 Watts;
136-150.8 MHz; 146-174 MHz; 152.9-174 MHz - 5 or 2 Watts;
403-433 MHz; 438-470 MHz - 4 or 2 Watts;
470-500 MHz; 488-512 MHz - 4 Watts

FEATURES

- Small Size and Weight
- Proven Rugged Construction
- Battery Saver
- Up to 99 Frequency Operation
- Wide Spaced Transmit & Receive
- Microcomputer Controlled Synthesizer
- Power-Up Alert
- Choice of Rotary or Display Models
- Field Programmability
- Universal Capability
- Radio Cloning
- Multiple PRIVATE-LINE Tone Coded Squelch
- Multiple DIGITAL PRIVATE-LINE Coded Squelch
- TOUCH-CODE Signalling (DTMF)
- DTMF Auto Dialing
- DTMF Decode
- Unit ID/Emergency
- Time-Out Timer
- Choice of Batteries
- Variety of Accessories
- QUIK-CALL II Decode
- USER Programmable Channel Scan
- Mode Select Programming
- PAC•RT/PAC•PL Operation
- Approved for Operation in Hazardous Atmospheres
- Vehicular Adapter Operation

Performance and Reliability Improvements / ADVANTAGES

SMALL SIZE AND LIGHTWEIGHT — The MT1000 housing ranges in size from 23.2-26.4 cubic inches. Weight ranges from approximately 21.6 to 24.1 ounces. Battery choice is the determining factor for both size and weight.

Users will have communications without cumbersome equipment. The size allows the user to perform his or her job with a full range of motion. The light weight can be less fatiguing in a work shift.

IMPROVED AUDIO DESIGN — Advanced technology has been implemented in the MT1000 audio system to provide improved audio performance.

Results in more natural and pleasant sounding audio in *low noise environments and clear, easy to understand,* audio in high noise environments.

PROVEN SUPERIOR RELIABILITY — The Motorola Accelerated Life Test (ALT) was used in the design of the MT1000 radio. It simulates five years of field stress in a few weeks; helping identify possible failures brought on by field stress and abuse. Once identified, these faults are designed out of the product before it reaches your hands.

Motorola radios are designed to minimize the possibility of costly repairs and inconvenient down time.

RUGGED DESIGN — The housing is constructed of highly durable, impact resistant, molded polycarbonate compound. Radial sealing with silicone O-rings is utilized to provide extra resistance against dirt, dust and water intrusion.

The MT1000 Radio is designed to take a beating on the job and keep talking. A durable radio can help save money *on replacement and repairs.*

MIL STD 810 C&D — Eleven MIL STD 810C & 810D tests have been met or exceeded by the MT1000 radio. These include tests for rain, humidity, dust, shock and vibration.

Your radio is equipped to withstand rigorous environmental conditions and rough treatment and still perform to specifications.

Systems Advances / ADVANTAGES

MICROCOMPUTER CONTROLLED SYNTHESIZER — The MT1000 Radio operating system consists of a microcomputer controlled network of uniquely designed Motorola integrated circuits, including its fast lock synthesizer. Many discrete parts, such as multiple crystals & filters, have been eliminated.

This proprietary operating system results in flexibility since many of the radio's critical operations are reprogrammable without ever opening the radio. Additional channel capacity, up to 16 or 99 channels (VHF/UHF) or 6 or 32 channels (Low Band), depending on configuration, is now easily available. The limitations of crystal radios have been eliminated.

CHOICE OF RF POWER — The MT1000 Radio offers two or five watt VHF, two or four watt UHF, and six watt Low Band models.

Power levels and models can be chosen to accommodate system requirements for all types of applications.

VHF/UHF BANDS UP TO 16 OR 99 CHANNEL OPERATION — The MT1000 radio is available in two configurations. The 16 channel version is equipped with a mechanical 16 position rotary channel selector knob. The 99 channel version has a 2 digit Liquid Crystal Display (LCD) with electronic push button controls to scroll through channels.

LOW BAND UP TO 6 OR 32 CHANNEL OPERATION — The MT1000 Radio is available in two configurations. The rotary version is equipped with a six position channel selector knob. Display versions have a two digit liquid crystal display (LCD) with electronic push button controls to scroll through channels. (For large systems utilizing specific channel numbering schemes, the display radio can be programmed to show only the desired channel numbers.)

Provides the capability and flexibility to work in a wide variety of small, medium or large systems.

System Advances / ADVANTAGES

WIDE SPACED TRANSMIT AND RECEIVE — In VHF, Transmitter and/or Receiver frequencies can be separated by up to the full bandsplit with no degradation of performance. In UHF they can be separated by up to 8 MHz on Receive and 15 MHz on Transmit.

Users with multiple channels or with a need for multiple system access can now get the flexibility of wider bandwidth with the assurance of full performance.

FIELD PROGRAMMABLE — MT1000 Radio utilizes a reprogrammable EEPROM code plug, which permits most operating characteristics including frequencies within the specified subband, options and squelch codes to be changed or added without opening the radio. Programming is done via a programming cable interface to an IBM PCXT® or Laptop PC®

Frequency and squelch code changes are made quickly and inexpensively, saving time and money. A radio can be changed with a minimum of down time, enabling you to easily move the radio from one work group to another.

Operator Features / ADVANTAGES

POWER-UP ALERT — The microcomputer performs an internal self-check and gives an alert tone to signal the user that the radio is working properly each time it is turned on.

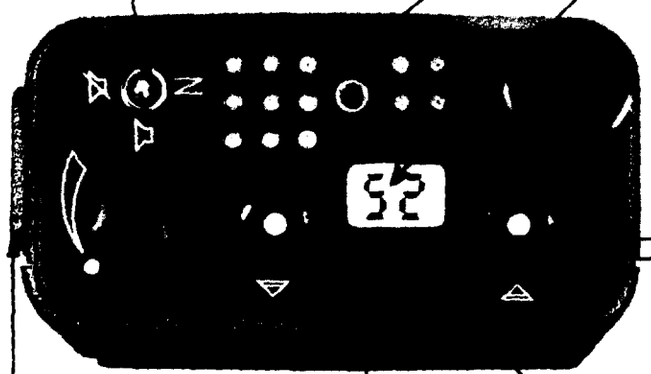
The user knows the radio is working each time it is turned on. This reduces the possibility of personnel unknowingly putting non-working equipment into use.

MULTI-FUNCTION SQUELCH/SCAN SELECT SWITCH — This switch enables ( ) and disables( ) coded squelch. In radios ordered with scan, the 3rd position enables scan( ).

Adds to user convenience by allowing the user to operate in Carrier Squelch for extended periods when required. Top mounted select switch allows easy access and quick change from scan to non-scan mode.

UNIVERSAL CAPABILITY — The MT1000 portable radio has a top mounted universal connector for attaching a variety of audio accessories. The unique connector is molded in, utilizes gold contacts and no moving parts.

The use of audio accessories provides the user added convenience by allowing talk and listen operation without removing the radio from its carry case or belt. The connector design helps to insure weather sealing and highly reliable long term use.



2 DIGIT LCD (Liquid Crystal Display) — The MT1000 display version comes with a top mounted 2 digit LCD. The LCD indicates: current operating channel, scan mode, and priority channel when ordered. It has a backlight which can be accessed thru a button on the side of the radio for low light conditions. The LCD also includes indicators for scan operation. The display can be reversed for viewing while on the belt.

The top mounted (reversible) LCD provides easy viewing on the belt or in the hand. The display includes indicators for priority channel and scan functions, letting the user know quickly of scan status. The display also indicates current operating channel. The backlight facilitates channel selection even in low light conditions.

LED's (Light Emitting Diode) — The rotary version comes with a dual function LED. The display version comes with 2 LED's (1 red/1 green).

Provides visual feedback of your radio's status.

BATTERY STATUS/TRANSMIT INDICATOR — The LED glows with a steady red light when radio is transmitting. When the battery requires charging the LED blinks red when radio is transmitting.

Users know when the battery is low, allowing them to charge or replace the existing battery. This can help avoid the potentially hazardous situation of your personnel inadvertently being left without communications.

CHANNEL BUSY LIGHT — The LED glows with a flashing green light when there is channel activity on a PL or DPL protected channel.

Adds to user convenience, allowing a quick glance at the radio control top to determine if a channel is free.

MONITOR BUTTON — The monitor button is conveniently located on the side panel of the radio, for quick and easy one-

Options / ADVANTAGES

BATTERY SAVER — The battery saver technology increases hours of operation between charges by reducing current drain. The advanced microcomputer is able to temporarily 'shut off'

TALK-BACK SCAN — This feature of the MT1000 Channel Scan allows the user to "talk-back" on active scan channels. When the scanner detects activity on a scan channel it will lock

Options / ADVANTAGES

"Time-Out" Timer — Transmission can be limited to a duration programmable from 1 to 255 seconds. The transmission is automatically terminated after the programmed interval and an audible alert tone is emitted to signal this condition to the operator. After de-keying the operator can again key-up for the next transmission.

Prevents inadvertent or prolonged transmitter keying which ties up a repeater or a channel for all co-channel users. Your radio can be custom programmed to meet your system requirement.

Unit Identification/Unit ID & Emergency — Compatible with Motorola's Digital Communications Systems, this option provides automatic unit identification. Each radio can be programmed to send a unique identification code with each transmission. This identification may be combined with an emergency status that is activated when the operator depresses the alarm switch on the unit. These options are available in MDC600 and Stat Alert (MDC1200) signalling formats.

The dispatcher, equipped with the appropriate decoder, is provided with a visual readout identifying the radio transmitting a signal, thereby mimimizing air time required for normal communications. A visual readout and audible tone alerts the dispatcher of an emergency situation, providing added user security.

"QUIK-CALL II" Decode (SELECTIVE CALL SIGNALLING PORTABLE PAGING) — The MT1000 radio, when placed in the QUIK-CALL mode, will only receive messages preceded by the individual radio's coded signal. When the correct signal is received an audible alert tone is generated to help assure that the user is aware of the transmission. After the alert tone the radio operates in the normal talk and listen mode until reset to the QUIK-CALL mode. Long Tone B signalling allows both individual and group call in the same radio. A two-tone paging encoder system is required for operation.

With "QUIK-CALL II" signalling, the MT1000 HANDIE-TALKIE Radio can operate as a two-way radio or as a 'Talk back' pager with the Motorola "PEOPLE FINDER" System. This provides you with system flexibility and keeps your personnel out of the communications flow until you want them. Since operators hear only messages intended for them, they are spared the distraction of channel traffic, which can help increase productivity.

DTMF DECODE — An MT1000 radio equipped with this option will only receive messages preceded by the correct DTMF tone sequence. Each radio is capable of storing three unique decode sequences for multiple levels of calling: Individual, Group Call I and II. Alert tones are emitted each time a correct sequence is decoded. An acknowledge alert tone is generated on individual calls providing the caller with positive feedback. After the DTMF sequence is decoded, the radio will operate in the normal talk/listen mode until it is reset in the DTMF Decode mode. This option is completely compatible with PL or DPL radios. Stored sequences can be easily reprogrammed through the front cover of the radio.

DTMF Decode provides increased user flexibility through selective calling directly from portable to portable. Users within a system are provided with the freedom of contacting each other individually or in teams eliminating the need for a central dispatcher. Since a radio will remain squelched until the sequence has been decoded, users are spared the distraction of channel traffic and hear only those calls intended for them. Ease of programming means greater user convenience for changing system needs.

APPROVAL FOR HAZARDOUS ATMOSPHERES — The MT1000 Portable Radio has been tested by FACTORY MUTUAL and when ordered with the appropriate FM approved battery and accessories, it is approved for use in Classes I, II and III, Division 1, Groups C, D, E, F & G atmospheres.

This approval means these radios can be safely used in emergency situations where hazardous gases may be present or in operations that normally produce hazardous atmospheres.

PAC•RT/PAC•PL VEHICULAR REPEATER OPERATION — MT1000 models can interface with PAC•RT or PAC•PL vehicular repeaters. Repeater access enables portable communications that utilize the power of a mobile radio.

PAC•RT/PAC•PL compatibility gives you the mobility to leave the vehicle and still maintain contact with other mobiles, portables or the base via the mobile repeater.

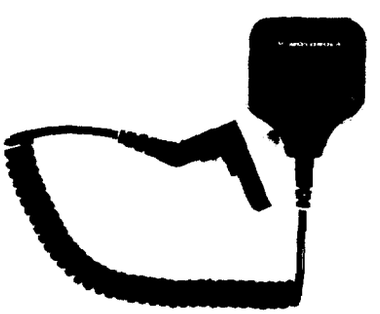
MAN DOWN Emergency Operation — When the MAN DOWN radio is tilted more than 60° nominally an emergency transmission sequence is generated. Please refer to catalog sheet R3-4-137 for further details.

Enables the operator to alert the dispatcher to an emergency without having to manually activate the radio.

Accessories / ADVANTAGES

REMOTE SPEAKER MICROPHONE — A speaker microphone is available to provide remote talk and listen capability. It attaches to the Universal connector, located on the top of the radio.

You can use the remote speaker 'mic' to transmit or receive while the radio remains comfortably on your belt or in the case.



SPEAKER/MICROPHONE/ ANTENNA (SMA) (UHF Only) —A special Public Safety remote speaker microphone accessory has a top mounted antenna, providing additional antenna height for better radiation.